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Scatter Plots and Trend Lines

Unit 5 Lesson 7

SCATTER PLOTS AND TREND LINES

Students will be able to:

Understand the concept of scatter plots of a data
and draw trend lines based on the given data

Key Vocabulary:

- Scatter Plots
- Trend or Correlation
- Trend Lines



SCATTER PLOTS AND TREND LINES

Scatter Plots

A **scatter plot** is a graph relating two different data sets by displaying them as ordered pairs. A scatter plot shows a particular trend or correlation.

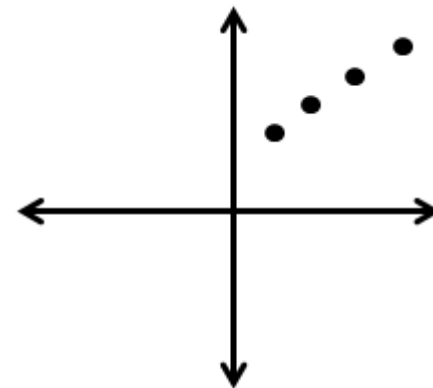
Trend or Correlation

The trend or correlation between two data sets represents the behavior of the graph of the two data sets.

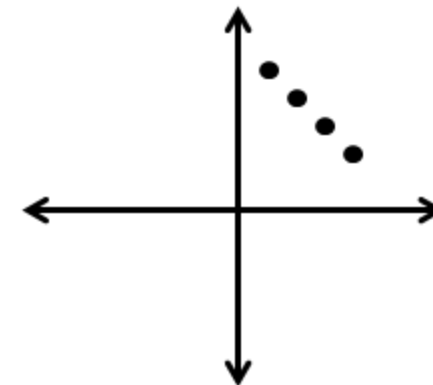
SCATTER PLOTS AND TREND LINES

- If the points on a scatter plot generally slope up in going from left to right, the correlation is **positive**.
- If the points on a scatter plot generally slope down in going from left to right, the correlation is **negative**.

Positive Correlation



Negative Correlation



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Problem 1: The table below compares the weight of boys at different ages. Make a scatter plot of the data. What type of correlation does the scatter plot show?

Age in Years	3	5	7	9	11
Weight in kg's	8	13	20	24	29

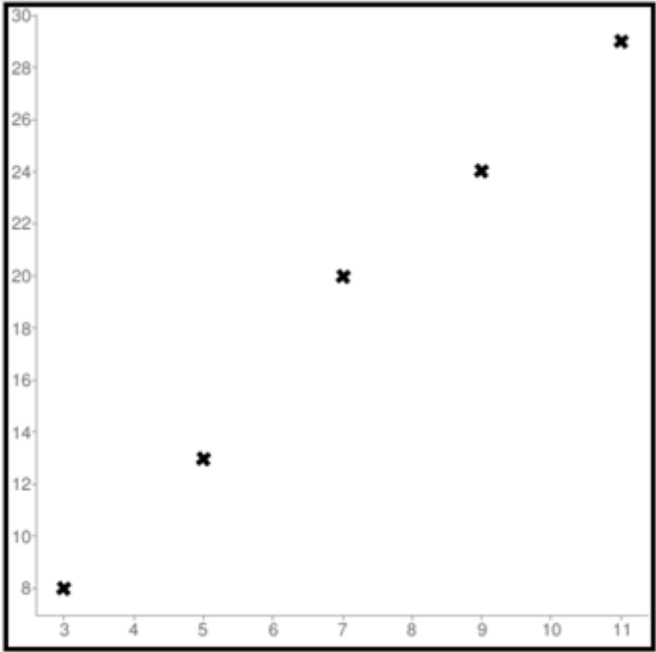
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Problem 1: The table below compares the weight of boys at different ages. Make a scatter plot of the data. What type of correlation does the scatter plot show?

Age in Years	3	5	7	9	11
Weight in kg's	8	13	20	24	29

The scatter plot shows that the weight increases with the increase in age. So the data represents a **positive correlation**.

Weight in kg's



Age in Years

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Trend Line

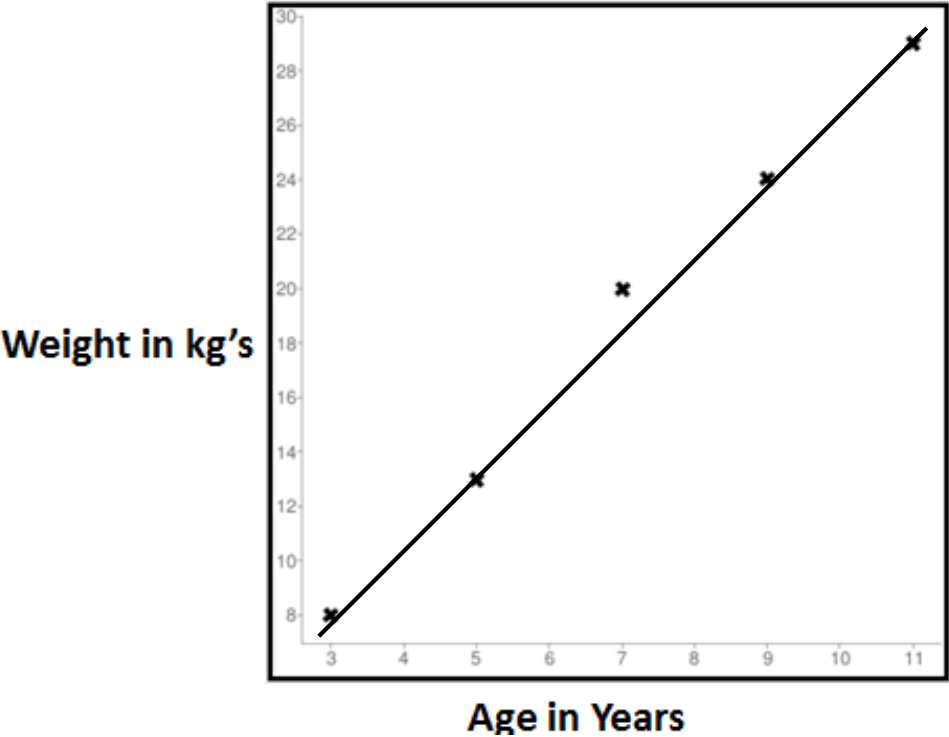
A trend line is a line drawn near the points on the scatter plot. We can write an equation of the trend using the points on the line and use the equation to estimate other values.

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Problem 2: Draw a trend line for the data in problem 1. What is the equation of the trend line?

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Problem 2: Draw a trend line for the data in problem 1. What is the equation of the trend line?

Write the equation of the line:

$$y - y_1 = m(x - x_1)$$

$$m = \frac{13 - 8}{5 - 3} = \frac{5}{2}$$

$$y - 8 = \frac{5}{2}(x - 3)$$

$$y = \frac{5}{2}x - \frac{15}{2} + 8$$

$$y = \frac{5}{2}x + \frac{1}{2}$$

